DINOSAURS!

•DISCOVER THE GIANTS OF THE RIC WORLD•

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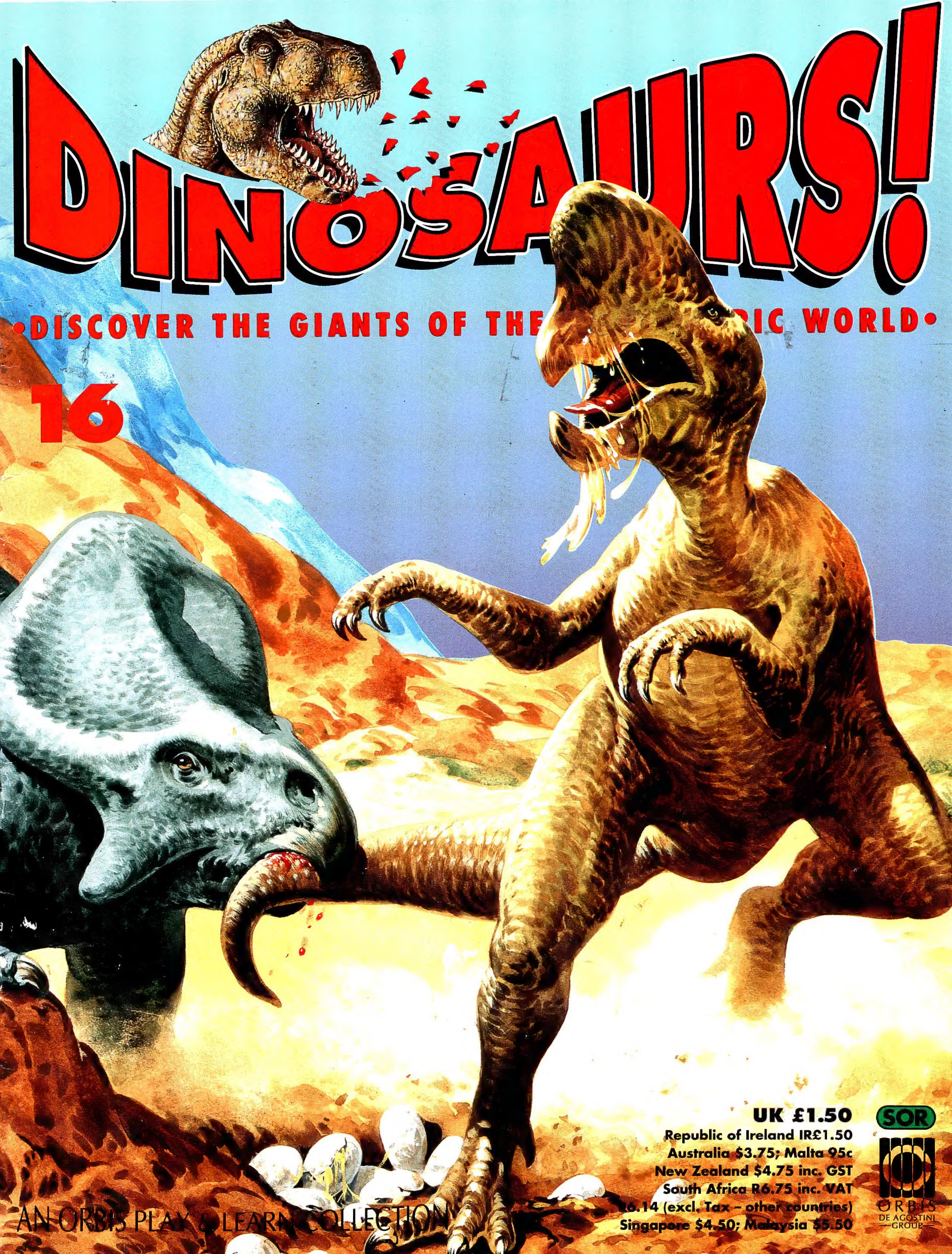

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• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

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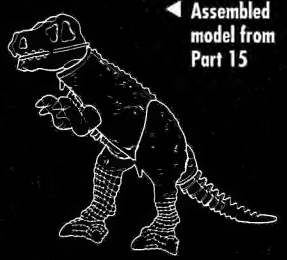
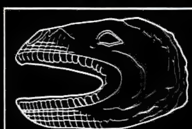
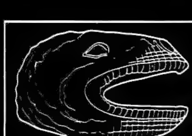
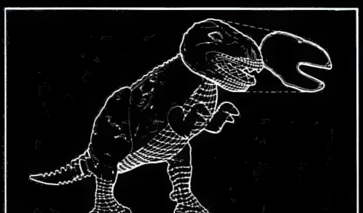


◄ Assembled model from Part 15





► This issue's model piece
Model part 14–
head (two pieces)



Place green half head pieces either side of the dinosaur's skeleton head. Push pins on the left half of head into holes on right half of head piece.

▲ Your complete *T rex* model

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DINOSAURS! is published by
Orbis Publishing Ltd
Griffin House
161 Hammersmith Rd
London W6 8SD
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N16 93 07 08 .

Printed in Italy by Officine Grafiche De Agostini, Novara

OVIRAPTOR

Speedy *Oviraptor* was only the same size as a wolf, but it was cheeky enough to steal eggs from under the nose of bigger dinosaurs.

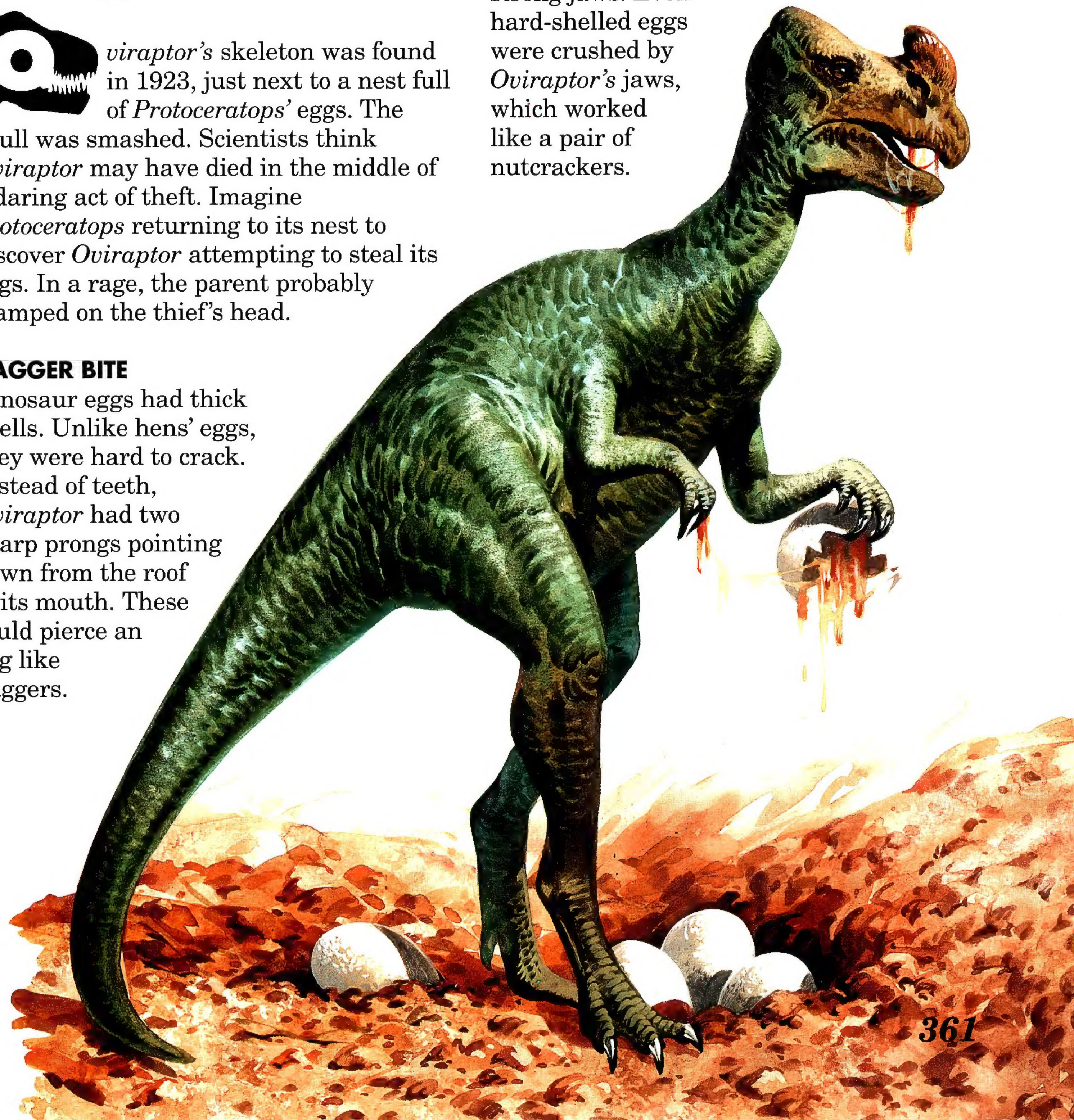
Oviraptor's skeleton was found in 1923, just next to a nest full of *Protoceratops'* eggs. The skull was smashed. Scientists think *Oviraptor* may have died in the middle of a daring act of theft. Imagine *Protoceratops* returning to its nest to discover *Oviraptor* attempting to steal its eggs. In a rage, the parent probably stamped on the thief's head.

DAGGER BITE

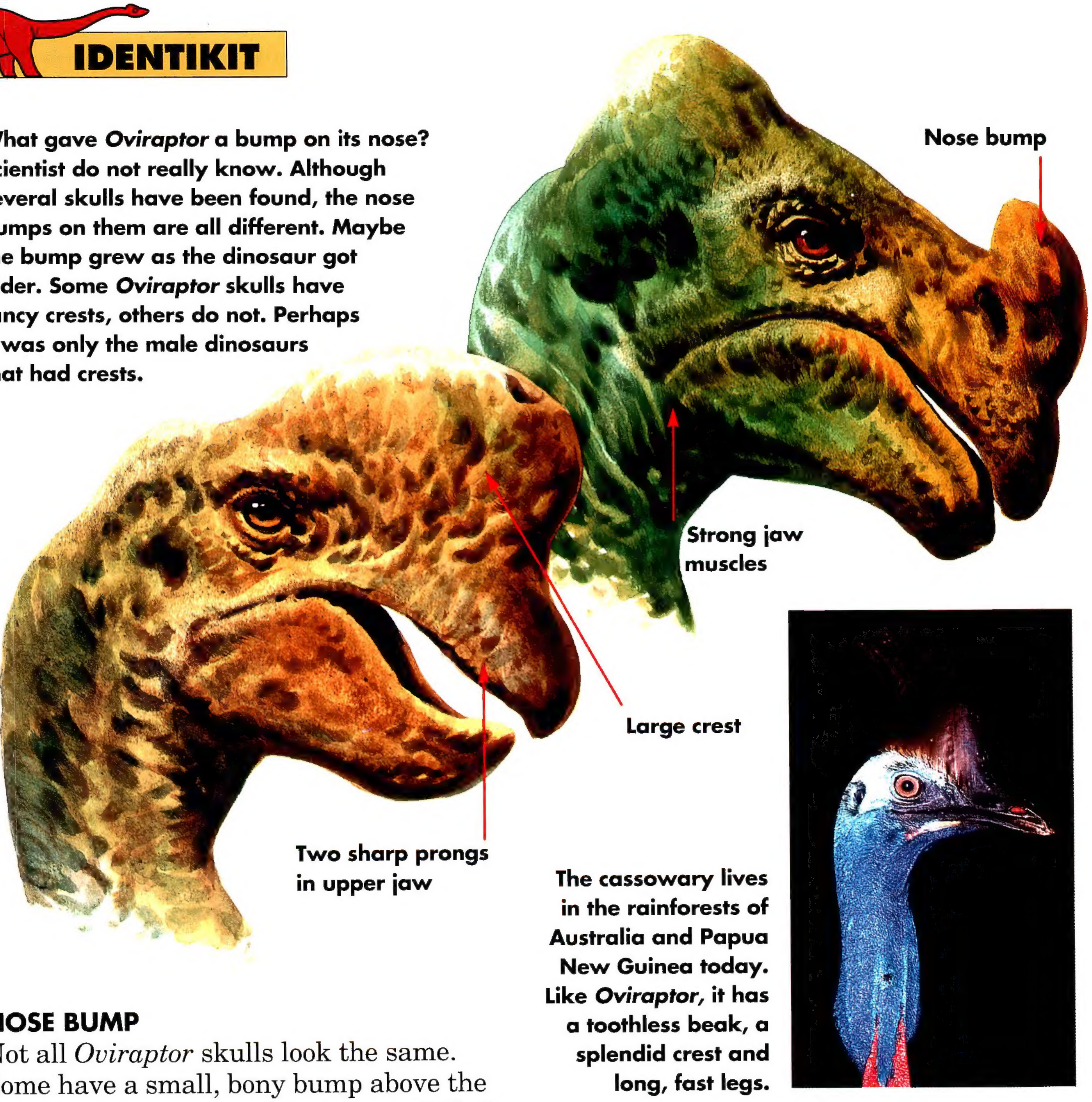
Dinosaur eggs had thick shells. Unlike hens' eggs, they were hard to crack. Instead of teeth, *Oviraptor* had two sharp prongs pointing down from the roof of its mouth. These could pierce an egg like daggers.

CURVED BEAK

Being toothless was not a problem for *Oviraptor*. The eggs it looked for were easily dealt with by its curved beak and strong jaws. Even hard-shelled eggs were crushed by *Oviraptor's* jaws, which worked like a pair of nutcrackers.



What gave *Oviraptor* a bump on its nose? Scientist do not really know. Although several skulls have been found, the nose bumps on them are all different. Maybe the bump grew as the dinosaur got older. Some *Oviraptor* skulls have fancy crests, others do not. Perhaps it was only the male dinosaurs that had crests.



NOSE BUMP

Not all *Oviraptor* skulls look the same. Some have a small, bony bump above the nostrils. Others have a large crest. With its short skull and big eyes, *Oviraptor* looked rather like a cassowary, a big, flightless bird that lives in Australia today.

WISHBONES

Scientists have discovered that *Oviraptor* had a very unusual bone in its shoulder. Most dinosaurs have a pair of shoulder bones, one on each side. However, *Oviraptor* had two bones that joined together to form one curved collar bone. It looked a bit like the chicken's wishbone that some people pull for good luck today.

The cassowary lives in the rainforests of Australia and Papua New Guinea today. Like *Oviraptor*, it has a toothless beak, a splendid crest and long, fast legs.

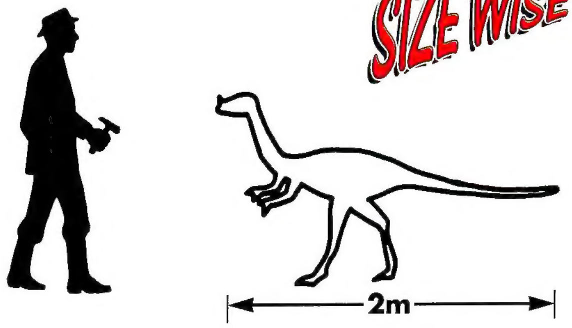
Is it true that some dinosaurs made it quite simple for *Oviraptor* to find their eggs?

Some hadrosaurs returned to the same nesting site year after year. Herds of these dinosaurs nested together. Each nest could contain as many as 30 eggs. By returning to the same place every year, these hadrosaurs probably made life very easy for *Oviraptor* – at nesting times it would have known exactly where to go to get its next meal.

MONSTER FACTS

- **NAME:** *Oviraptor* (ove-ih-rap-tor) means 'egg thief'
- **SIZE:** between 1.5m and 2m long
- **FOOD:** meat and other dinosaurs' eggs
- **LIVED:** about 80 million years ago in the Late Cretaceous Period in southern Mongolia

SIZE WISE

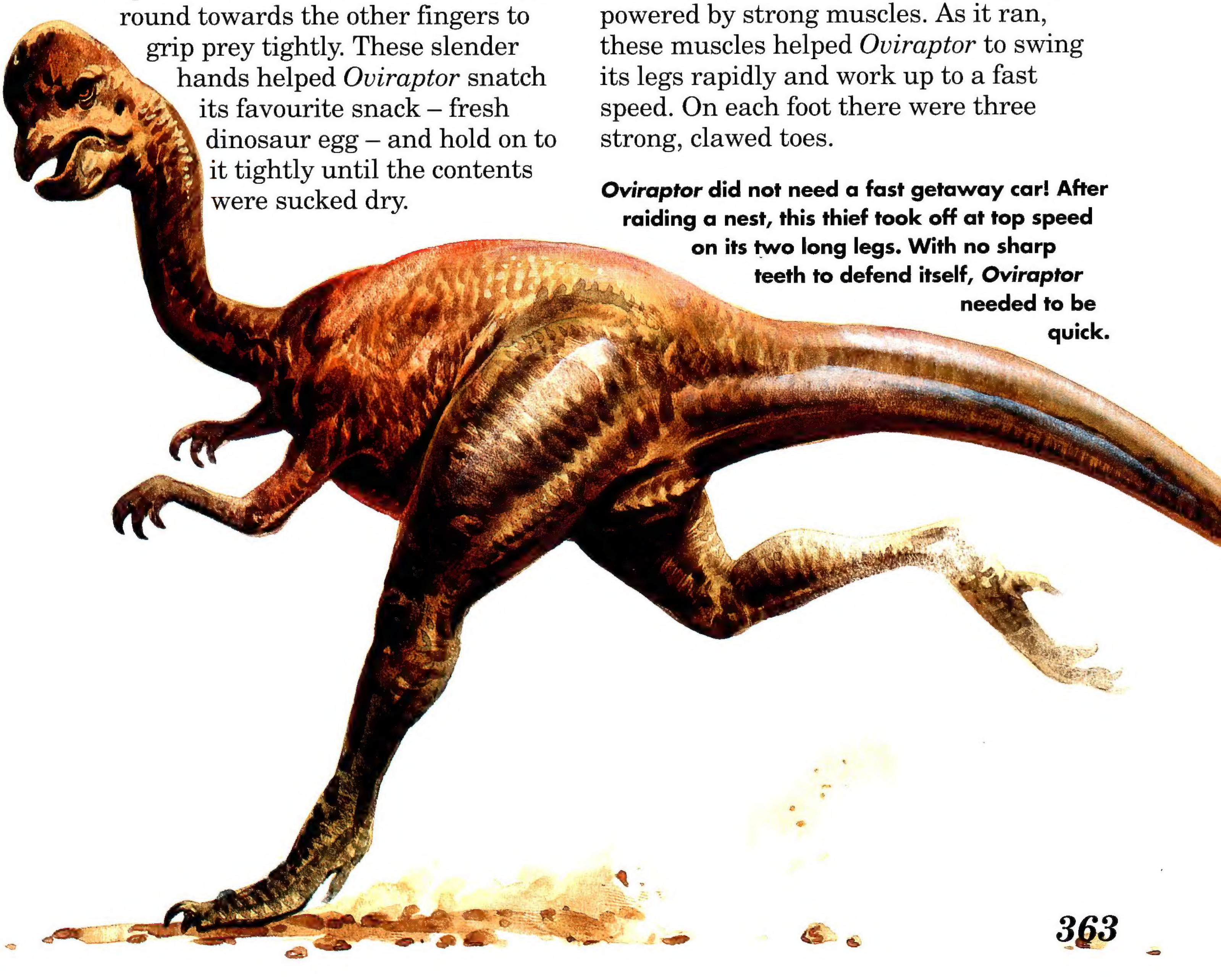


GRASPING HANDS

Oviraptor had three fingers on each hand with sharp, curved claws. The first finger was quite a bit shorter than the other two. *Oviraptor* used it like a thumb, curving it round towards the other fingers to grip prey tightly. These slender hands helped *Oviraptor* snatch its favourite snack – fresh dinosaur egg – and hold on to it tightly until the contents were sucked dry.

FAST GETAWAY

Such an agile and keen hunter was a great nuisance to other dinosaurs. After one of its smash-and-grab raids, *Oviraptor* made a quick exit. It escaped on two long legs powered by strong muscles. As it ran, these muscles helped *Oviraptor* to swing its legs rapidly and work up to a fast speed. On each foot there were three strong, clawed toes.



***Oviraptor* did not need a fast getaway car! After raiding a nest, this thief took off at top speed on its two long legs. With no sharp teeth to defend itself, *Oviraptor* needed to be quick.**

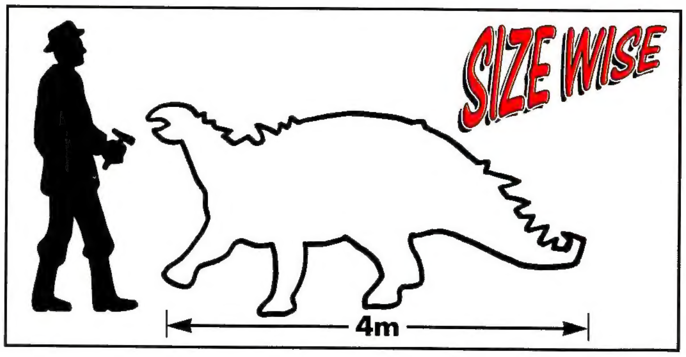
POLACANTHUS

Longer than a rhinoceros, spiky *Polacanthus* was saved from the sea.

For thousands of years, waves battered the cliffs of the Isle of Wight, wearing them down. Gradually, as the rocks fell away, the remains of *Polacanthus* appeared. Before the skeleton was found, by the Reverend William Fox in 1865, much of it had already been washed away into the sea.

UNDER ATTACK

The ferns that covered southern England 120 million years ago were munched by sturdy *Polacanthus*. Plodding along on its stout legs, it kept a look out for preying carnosaurs. If danger threatened, *Polacanthus* crouched close to the ground to protect its belly. The sight of its bony studs and spikes stopped many predators in their tracks. They wandered off to find a more tempting meal.

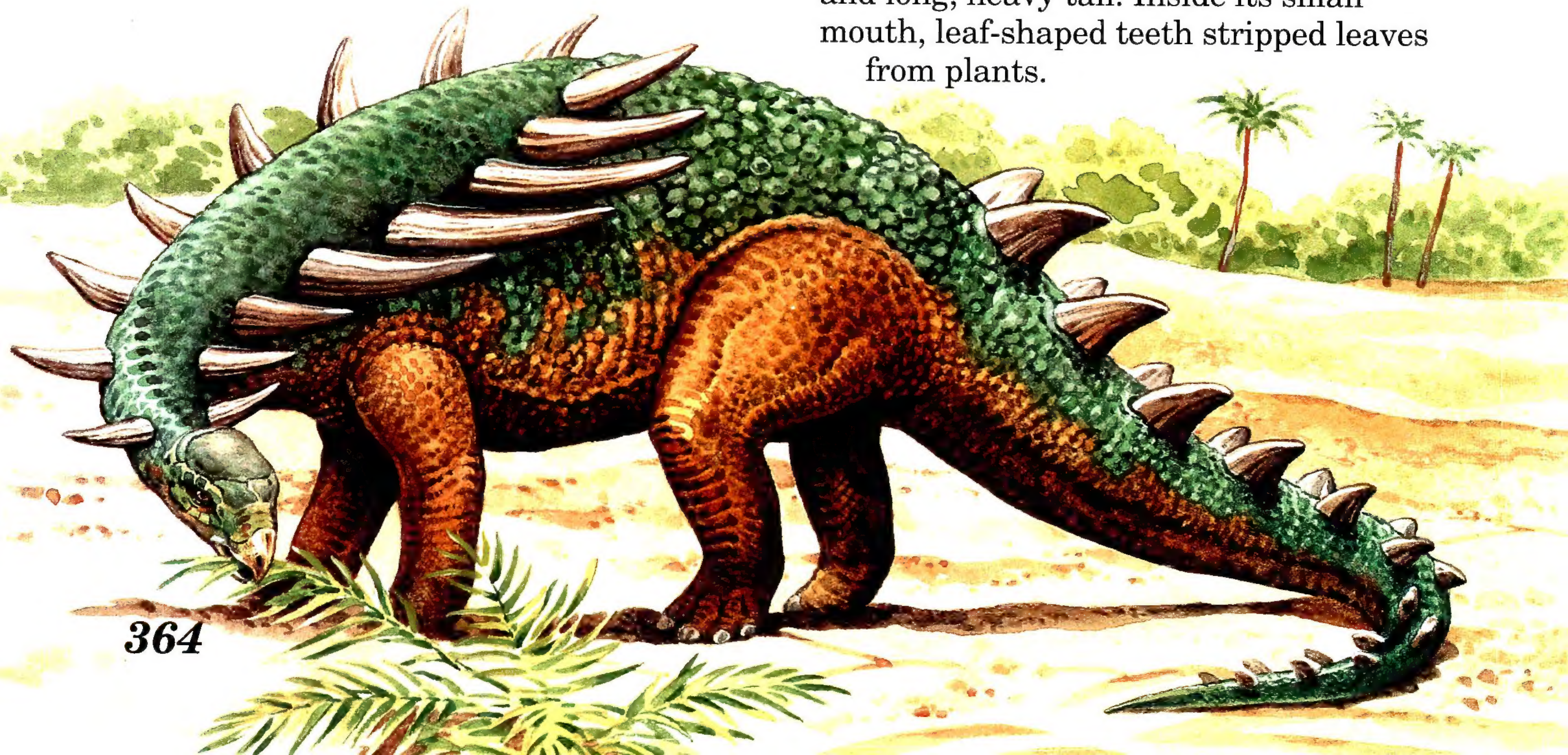


MONSTER FACTS

- **NAME:** *Polacanthus* (poh-lah-can-thus) means 'many spikes'
- **SIZE:** 4m long and about 1m high
- **FOOD:** low-growing plants and ferns
- **LIVED:** about 120 million years ago in the Cretaceous on the Isle of Wight, England

SHARP FRILL

Polacanthus probably wore its impressive spikes like a frill down the sides of its body and long, heavy tail. Inside its small mouth, leaf-shaped teeth stripped leaves from plants.



OPISTHOCOELICAUDIA

***Opisthocoelicaudia* was as long as two large crocodiles and slightly taller than a fully grown giraffe.**

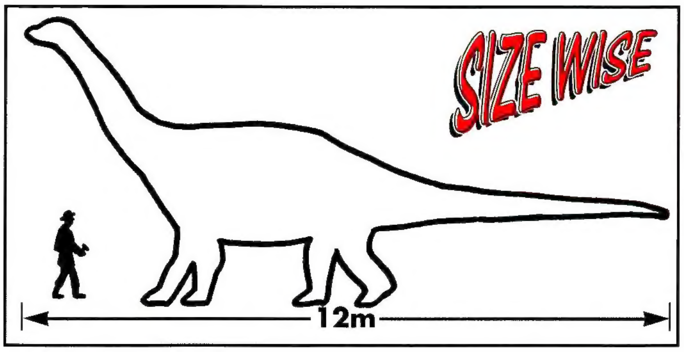
In the dry, windswept landscape of the Gobi Desert in Mongolia, scientists discovered the headless skeleton of *Opisthocoelicaudia* from the Cretaceous. This was a great surprise because most sauropods lived millions of years before, in the Jurassic.

DAMAGED DINOSAUR

Teeth marks were found on the fossilized leg of *Opisthocoelicaudia*. It had been gnawed by some other animal. Perhaps a passing dinosaur found its dead body and made a meal of its head and neck. Or they may have been bitten off in a fight. Experts have tried to guess what the dinosaur's head looked like. Some think the heads of *Camarasaurus* or *Nemegtosaurus* fitted quite well with the rest of the body.

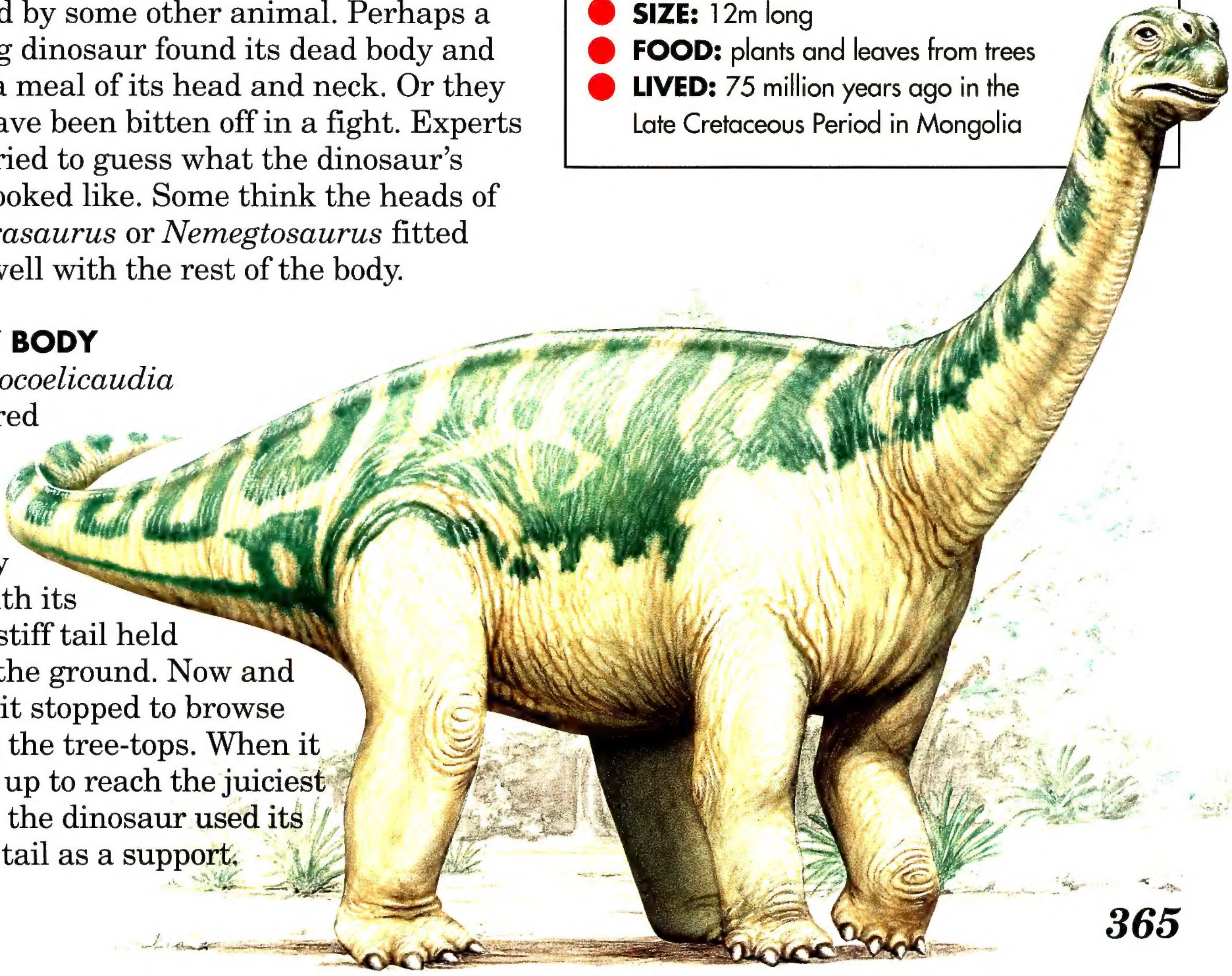
BULKY BODY

Opisthocoelicaudia lumbered about on thick, chunky legs with its short, stiff tail held above the ground. Now and again, it stopped to browse among the tree-tops. When it reared up to reach the juiciest leaves, the dinosaur used its strong tail as a support.

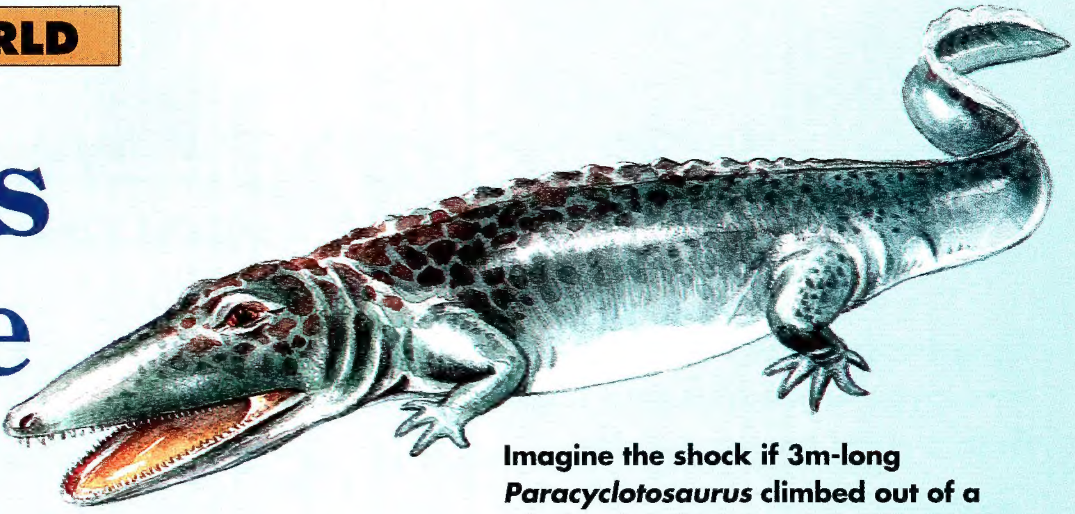


MONSTER FACTS

- **NAME:** *Opisthocoelicaudia* (oh-pis-thoe-seel-ih-kow-dee-a) means 'tail bones hollow at the back'
- **SIZE:** 12m long
- **FOOD:** plants and leaves from trees
- **LIVED:** 75 million years ago in the Late Cretaceous Period in Mongolia



Rulers before the dinosaurs



Imagine the shock if 3m-long *Paracyclotosaurus* climbed out of a garden pond. It's huge compared with today's amphibians, like newts.

Dinosaurs were not the first animals to rule the land. Amphibians did – 150 million years before!

The amphibians came on to land about 370 million years ago. They ruled for a time, but they always had to go back to water to lay their eggs. This was their downfall, as we shall see.

THE AMPHIBIANS' RISE ...

Amphibians were the first four-legged animals to live on land. They evolved from lungfishes. These strange fish could breathe air when the water dried up, and haul themselves over the mud on their fleshy fins to find a new pond. During the Age of the Amphibians (345 – 280 MYA), all shapes and sizes of amphibians stalked the land and splashed about in the swamps of the warm, steamy fern forests.

... AND THEIR FALL

By 300 million years ago, some of the first reptiles appeared. In dry areas, these early reptiles grew in number. They were much better equipped to survive, with their waterproof skin and shelled eggs. Amphibians had trouble, because their damp, slimy skin needed moisture, and their jelly-covered eggs needed water. So the reptiles gradually took over the land.

WATER OR DRY LAND?

Only a few amphibians were left to live alongside the dinosaurs. Among them were the ancestors of today's amphibians – frogs, toads, newts and salamanders. When dinosaurs took over, amphibians had two choices to survive. They could return to the water full-time, or they could evolve to cope with dry land.

As long as a large car, *Cyclotosaurus* was bigger than its Australian relative *Paracyclotosaurus.*

Two amphibians that never grew up. The axolotl (below) is alive today, but *Gerrothorax* (right) lived millions of years ago.

'PETER PAN' AMPHIBIANS

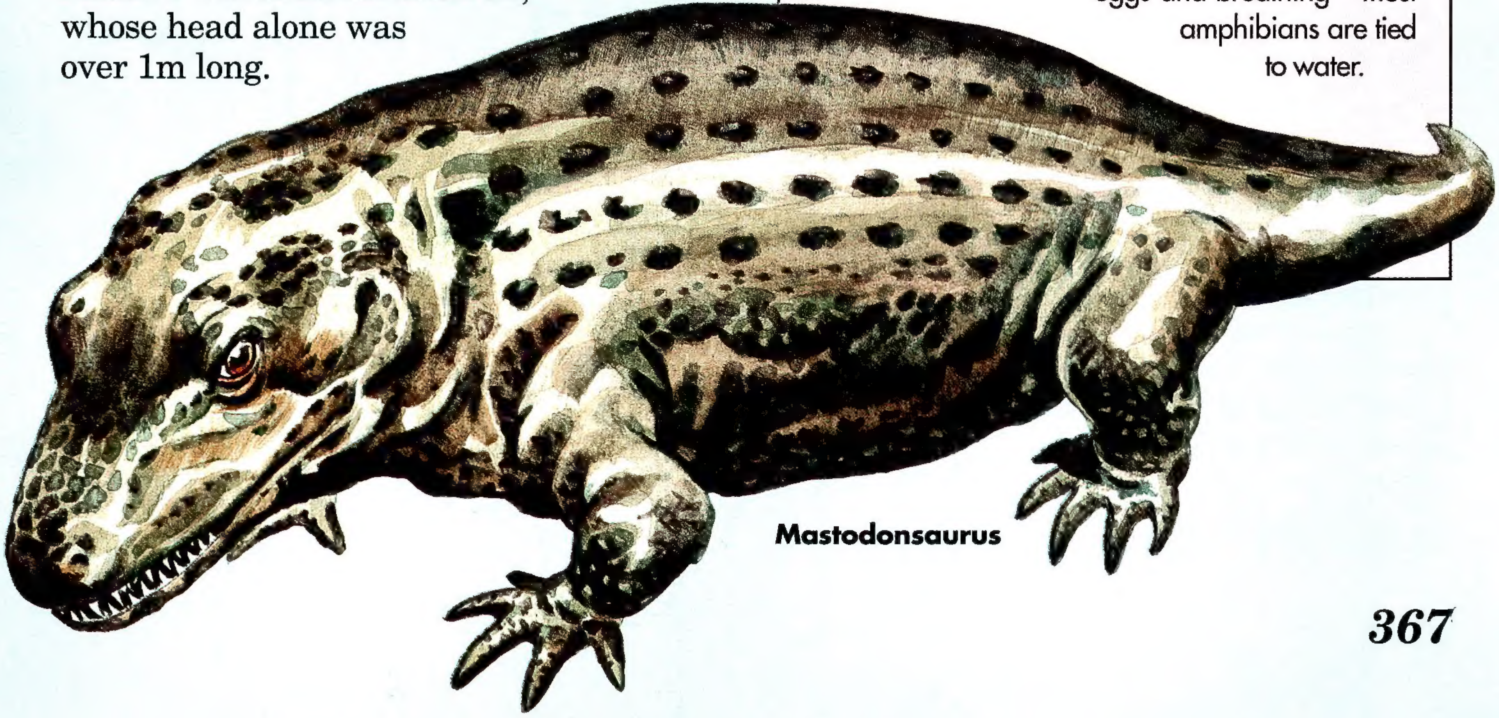
Today, a few amphibians never really grow up. They keep their tadpole-features, such as gills for underwater breathing, even when they are adults. The strange-looking creature, axolotl, is one of these 'Peter Pan' amphibians. *Gerrothorax* was another. It lived 200 million years ago and looked very like a huge axolotl with armour. Its body measured about 1m long.

BACK TO THE WATER

Amphibians that went back in the water no longer needed their large walking legs, so they developed swimming legs instead. One of these back-to-water amphibians was *Paracyclotosaurus*, from what is now Australia. It was nearly 3m long and probably lived on the beds of lakes and rivers. Its cousin, *Cyclotosaurus*, from Europe, was even bigger at 4m! Another relative was *Mastodonsaurus*, whose head alone was over 1m long.

What is? AN AMPHIBIAN

The word amphibian means 'two lives' – part in water, part on land. Typical amphibians begin their life as eggs in the water. The eggs hatch into tadpoles, which breathe through gills, like fish. The tadpoles then develop into adult amphibians. They live on land, breathing with lungs, and through their moist, slimy skin. So for two good reasons – eggs and breathing – most amphibians are tied to water.



Mastodonsaurus

Aphaneramma could not adapt fast enough to life on land, so it adapted for life in the sea. Its jaws were packed with teeth – ideal for catching fish.

AMPHIBIAN IN THE SEA

Today, amphibians live in ponds, lakes and rivers, not in the sea. But in prehistoric times, one did. It was 60cm-long *Aphaneramma*. One-third of this was the long, thin head, with slim jaws and many sharp teeth, with which it caught fish. It was successful for a time. Fossils show that it swam in many oceans 240 million years ago, before gradually dying out.

WHEN LAKES DRIED UP ...

Many other full-time back-to-water amphibians died out, too. Fossils of *Metoposaurus* show that when their lakes dried up at the end of the Triassic, they died and piled up in great heaps, unable to live out of water.

***Palaeobatrachus* looked much like the clawed toads that live in South America and Africa today. Fossils of *Palaeobatrachus* are so good that experts can study this toad in its spawn, tadpole and adult stages.**

Is it true that legs were originally fins?

Fossils of the fishes called lobe-fins show that there were a few bones in the fin where it joined the body. These bones gradually evolved and became the leg bones of amphibians. The four-limbed design has been very successful since. Most big land animals have it – even you!

FIRST FROGS

The amphibians that got better at coping with dry land were the small ones that survived until today. They included the first frogs and toads. *Triadobatrachus* (right) was one of the first frogs. Only 10cm long, it lived 220 million years ago in Madagascar. *Palaeobatrachus* (left) was an early toad. It looked like the clawed toads that are alive today, which live in water all their lives. Fossils of *Palaeobatrachus* adults, tadpoles and spawn were beautifully preserved in the mud. From these fossils, palaeontologists have been able to study the inside organs as well as the bones of *Palaeobatrachus*.

FOOTPRINT NURSERY

Karaurus (below right) was one of the first of the group of amphibians that includes newts and salamanders. *Karaurus* was only 20cm long and lived 150 million years ago in Kazakhstan, Asia. It could have hatched from spawn and grown up in the puddle-filled footprint left by a giant dinosaur!

NEWTS ALIVE

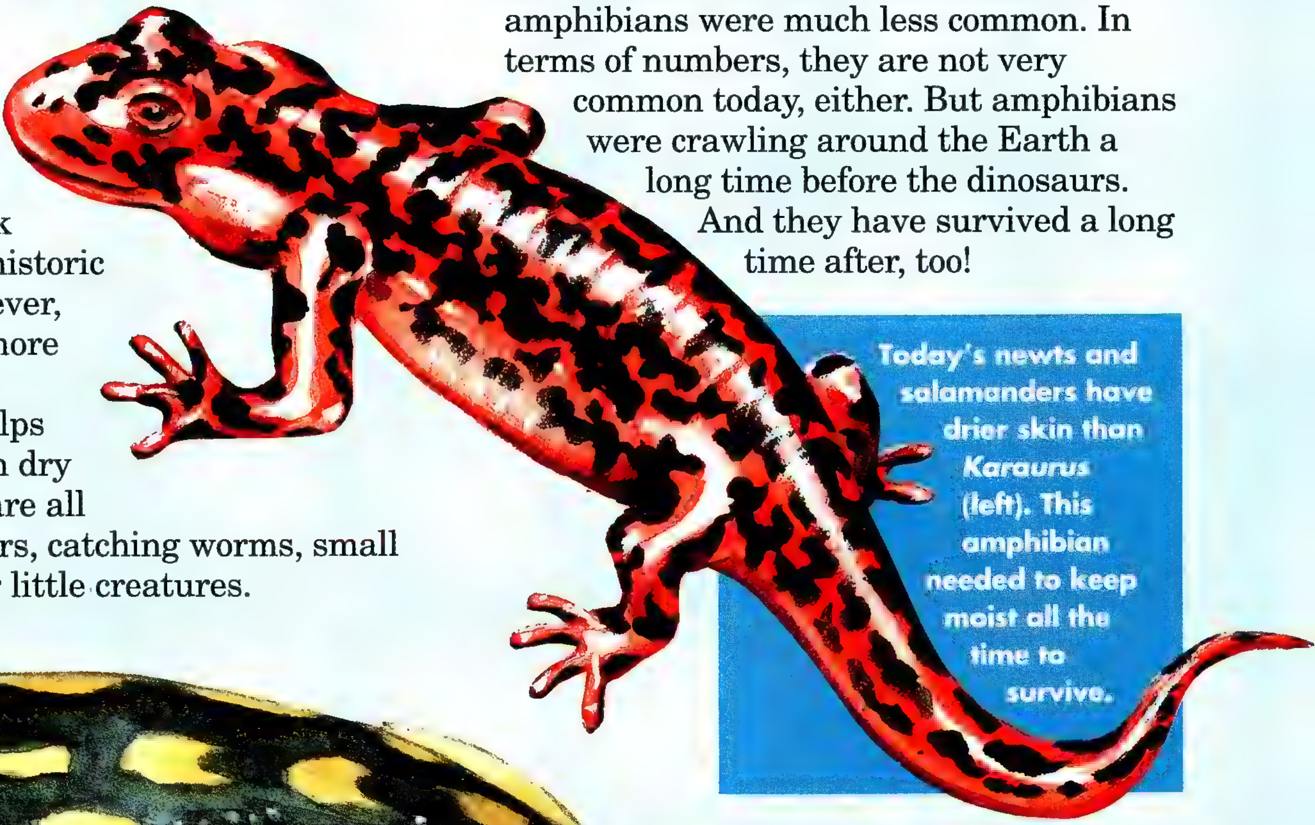
Newts that are alive today still look like their prehistoric cousins. However, their skin is more leathery than slimy. This helps them to live in dry places. They are all hungry hunters, catching worms, small fish and other little creatures.

LEGLESS AMPHIBIANS

Besides frogs and toads, newts and salamanders, there is another group of amphibians alive today. These are caecilians – strange creatures with no legs that look like big worms or small snakes. They burrow in the soil in tropical places, fiercely chasing worms and insects. One fossil dates back to dinosaur times. It is a single backbone of the caecilian *Apodops*, 65 million years old.

LONG LIVE THE AMPHIBIANS

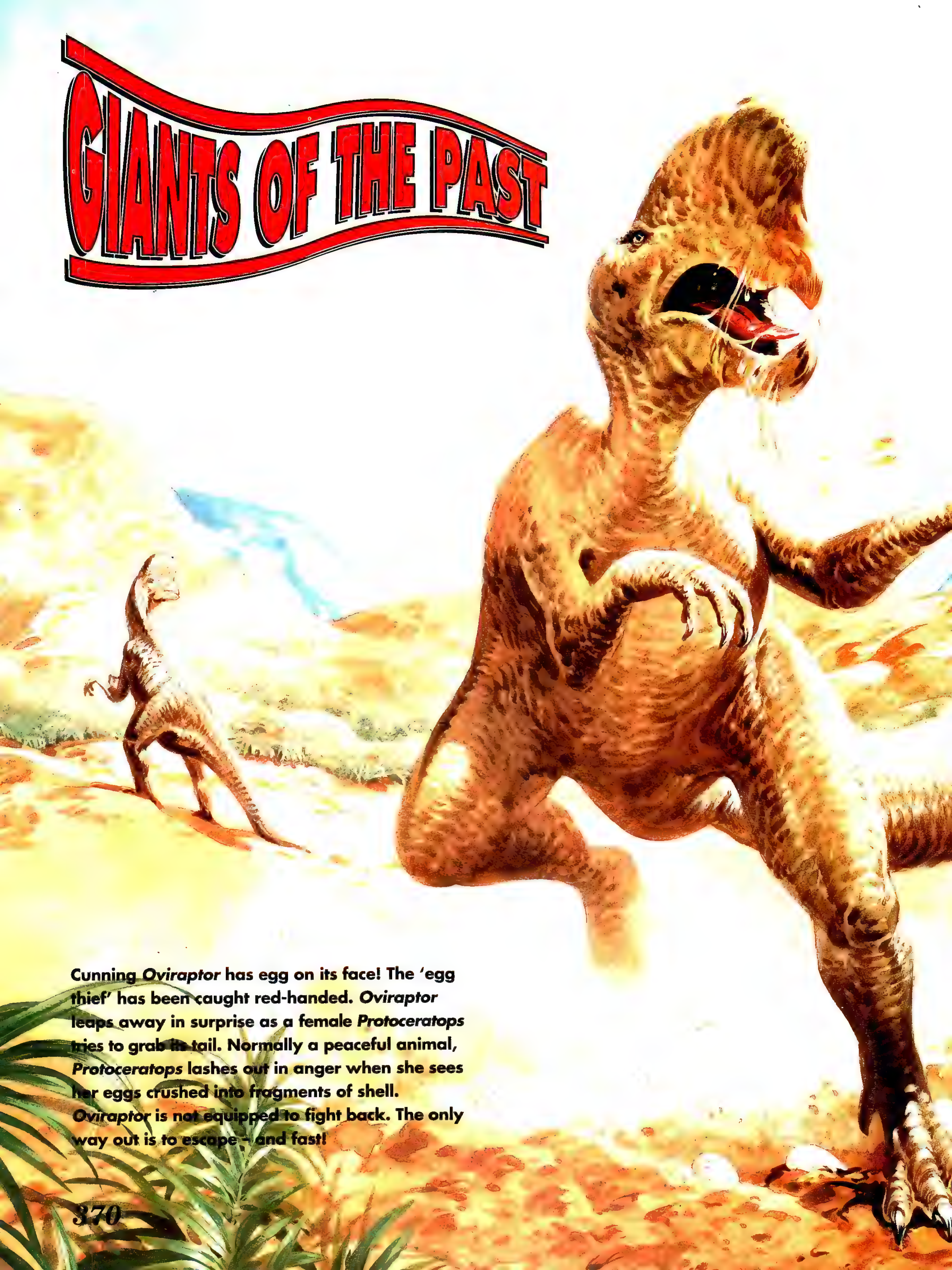
By the end of the Age of the Dinosaurs, amphibians were much less common. In terms of numbers, they are not very common today, either. But amphibians were crawling around the Earth a long time before the dinosaurs. And they have survived a long time after, too!



Today's newts and salamanders have drier skin than *Karaurus* (left). This amphibian needed to keep moist all the time to survive.

In real life, *Triadobatrachus* was a little bit smaller than it is on this page. Only about 5 million years after the first dinosaurs appeared, *Triadobatrachus* was hopping around Madagascar, a large island off the south-east coast of Africa.

GIANTS OF THE PAST

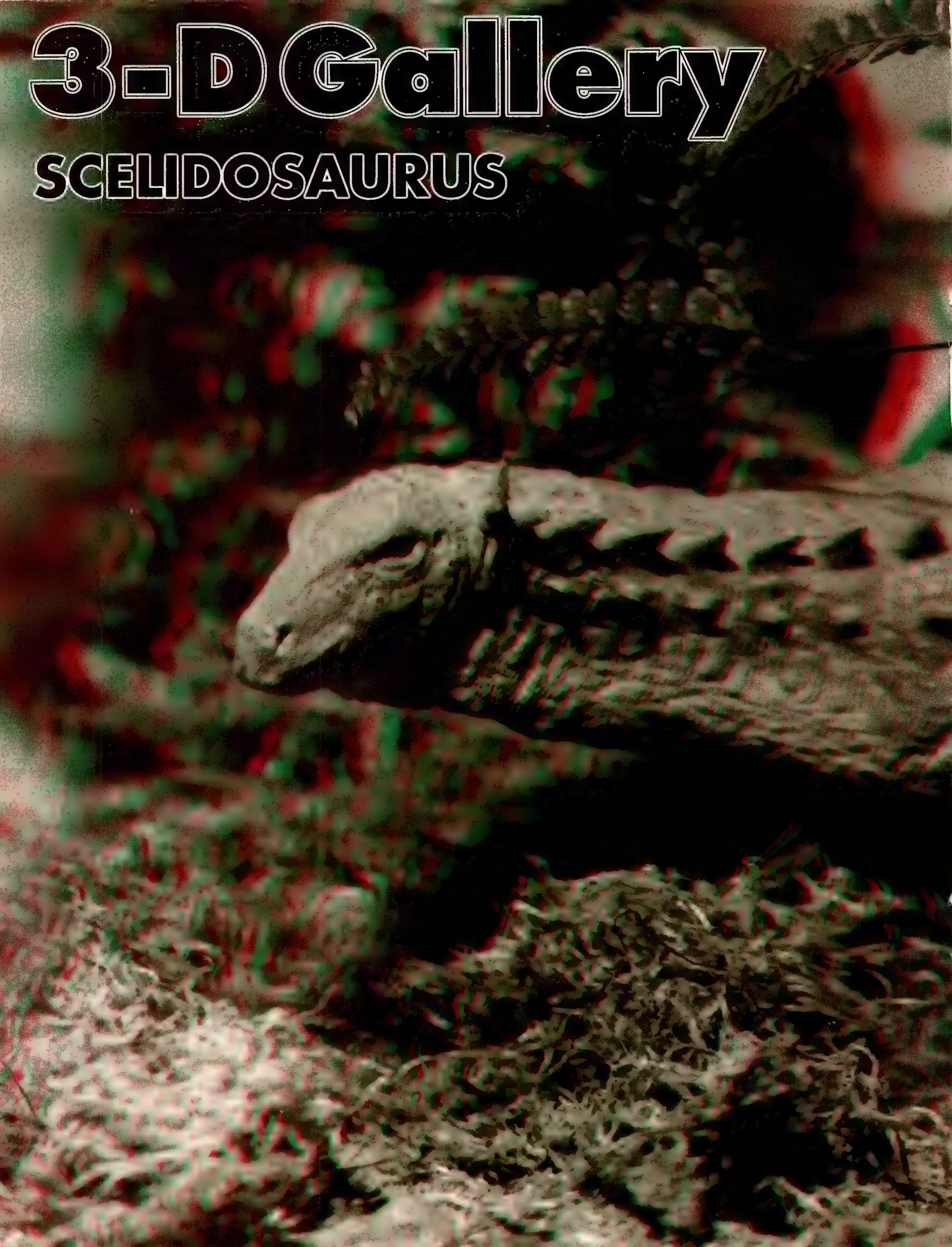


Cunning *Oviraptor* has egg on its face! The ‘egg thief’ has been caught red-handed. *Oviraptor* leaps away in surprise as a female *Protoceratops* tries to grab its tail. Normally a peaceful animal, *Protoceratops* lashes out in anger when she sees her eggs crushed into fragments of shell. *Oviraptor* is not equipped to fight back. The only way out is to escape – and fast!

OVIRAPTOR

3-D Gallery

SCELIDOSAURUS



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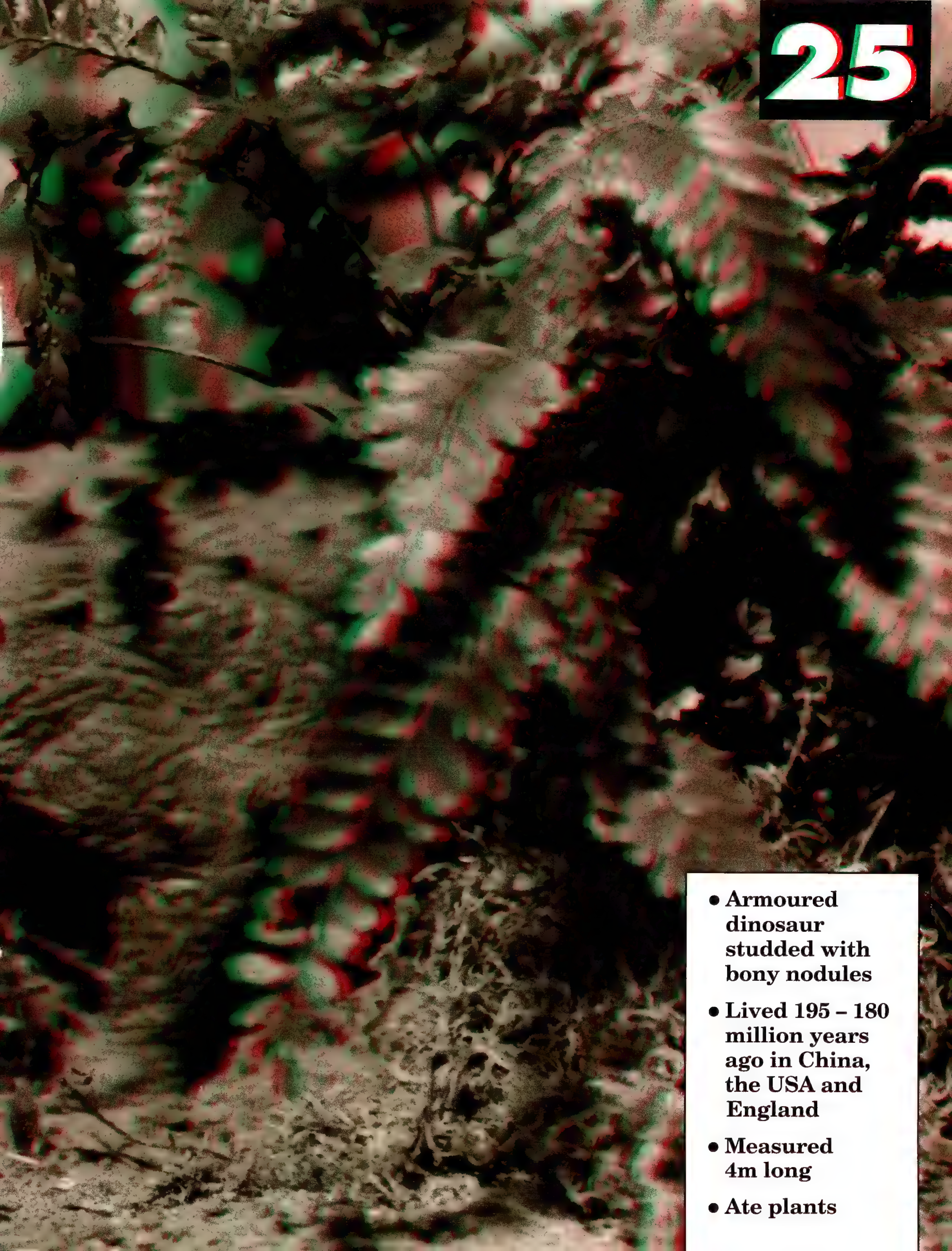
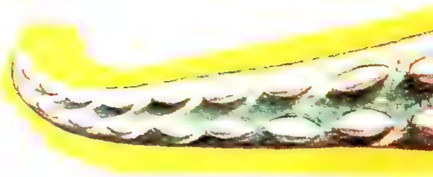


- Armoured dinosaur studded with bony nodules
- Lived 195 – 180 million years ago in China, the USA and England
- Measured 4m long
- Ate plants

Body guards



If you think suits of armour were only worn by medieval knights, then take a look at these armoured dinosaurs.

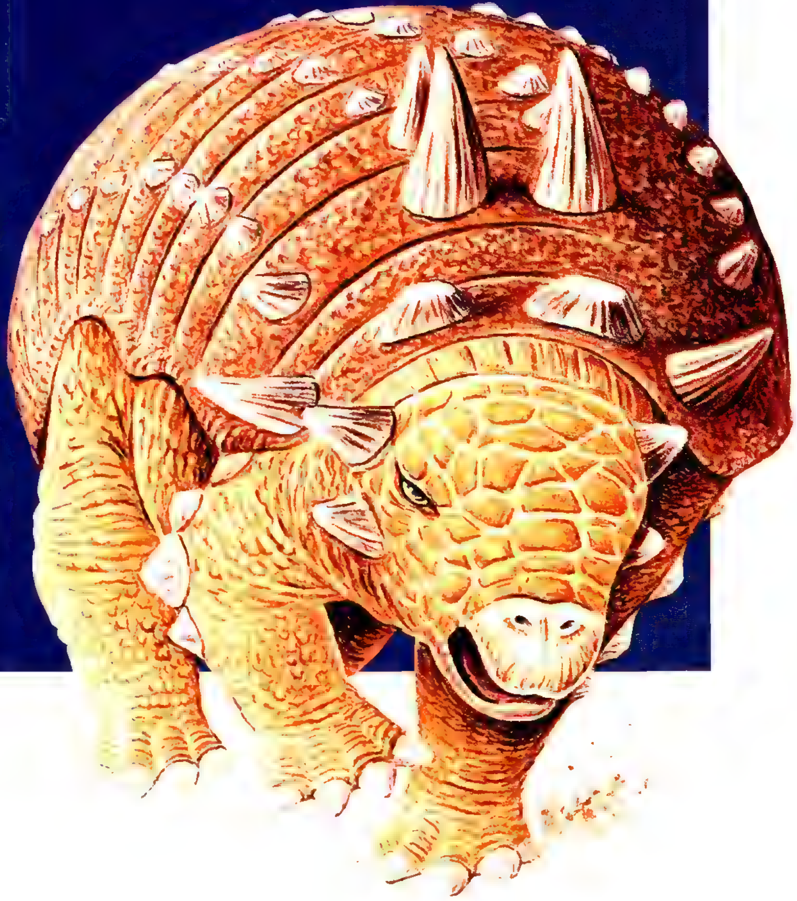
Some dinosaurs developed their own suits of armour to protect themselves from danger. Welded to their skin were hundreds of bony plates. Some dinosaurs, such as *Sauropelta*, are thought to have had as many as 1000!

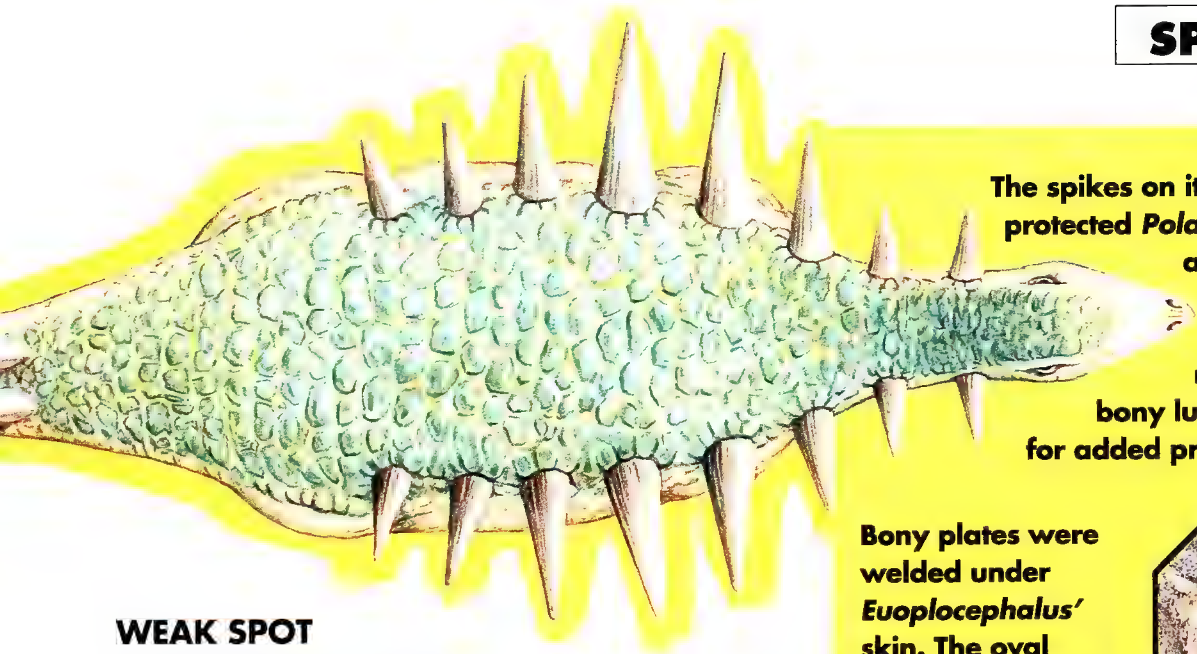
BUILT LIKE A TANK

Ankylosaurus was the largest ever armoured animal. At well over 11m, it was the size of a tank and almost as strongly protected. It had a large club at the end of its tail, which it swung out at approaching enemies. But *Ankylosaurus* did have a weak spot – its belly.

Head down and moving at top speed, *Euoplocephalus* (below) was as threatening, and as well-armoured, as a tank (above).

Although they did not know about armoured dinosaurs, knights used armour, too. When they rode into battle, they covered themselves and their horses from head to foot in armour.





The spikes on its neck and body protected *Polacanthus* (left) from attack from the side. Across its lower back, *Polacanthus* may have had extra bony lumps under its skin for added protection.

WEAK SPOT

Scientists have found fossils of *Ankylosaurus* lying on its back. This may have been because it fell into a river and drowned, but it is possible that a carnosaur rolled the ankylosaur over and attacked its unprotected belly.

DUCKING FROM DANGER

If there was no hope of escape, an ankylosaur would crouch down and tuck its legs underneath its body. Any hungry meat-eater trying to get a grip on its tough body was likely to come away with a few broken or blunted claws.

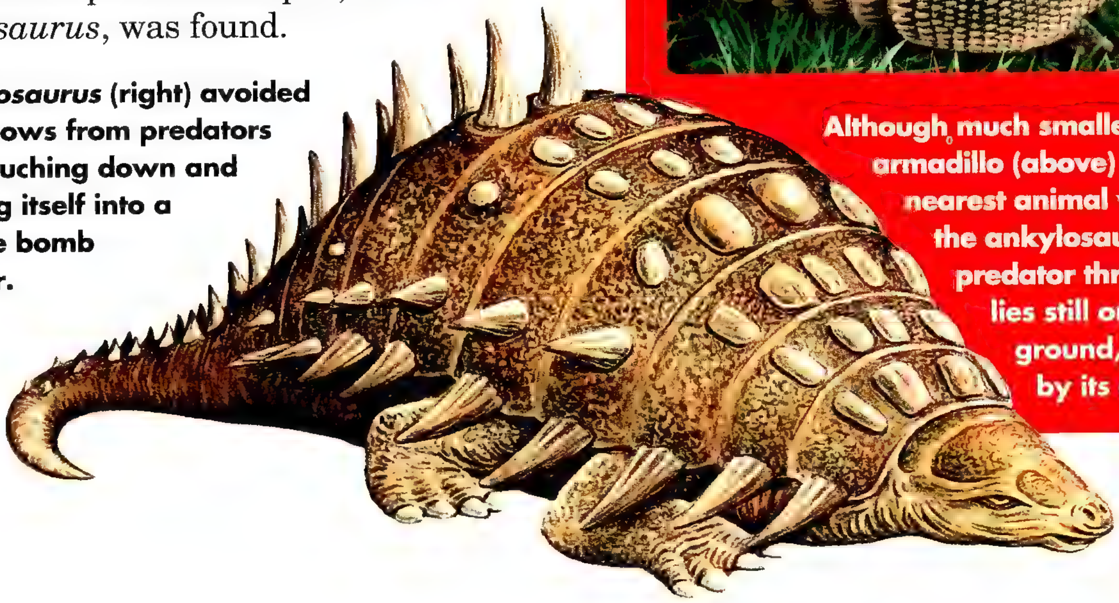
STRANGE SAUROPOD

Experts used to think that only dinosaurs like those on this page had armour. But, in 1980, they changed their minds when an armour-plated sauropod, called *Saltasaurus*, was found.

Bony plates were welded under *Euoplocephalus'* skin. The oval plate on the right of this picture is the size of an egg.

Polacanthus was covered in bony nodules, as this fossil impression of skin shows.

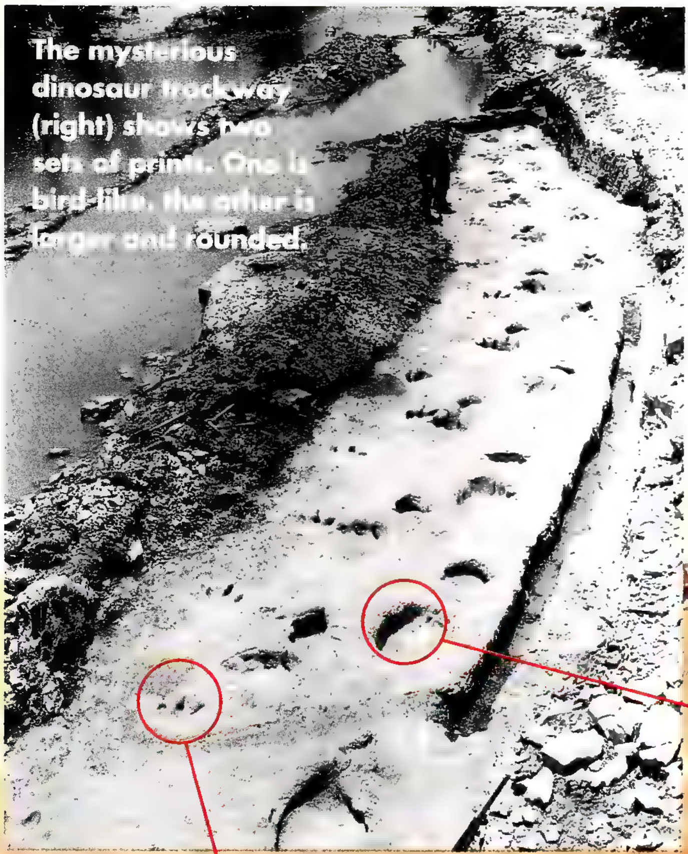
Although much smaller, today's armadillo (above) is the nearest animal we have to the ankylosaurs. If a predator threatens, it lies still on the ground, protected by its armour.



***Hylaeosaurus* (right) avoided any blows from predators by crouching down and turning itself into a mobile bomb shelter.**

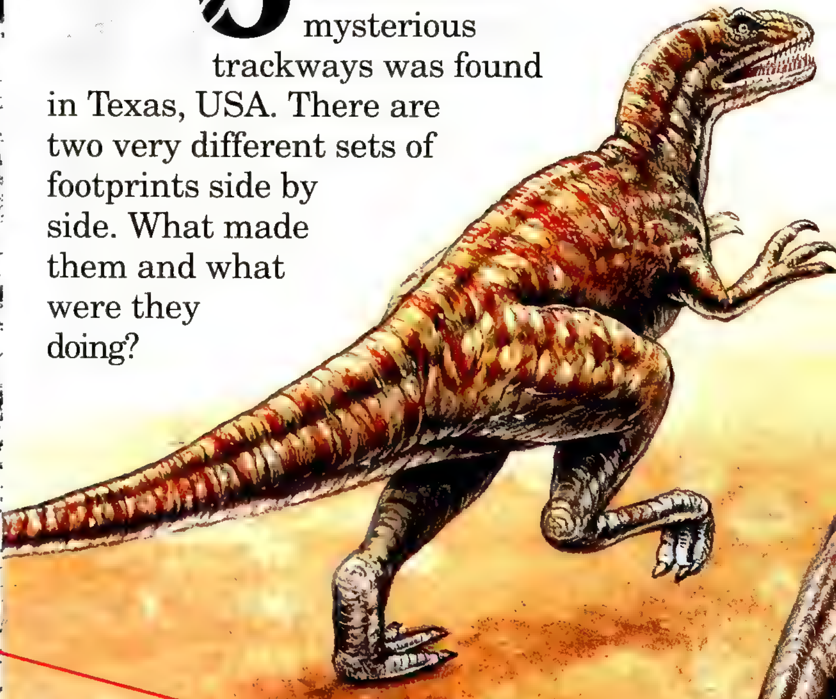
Footprints across time

Strings of dinosaur footprints are called trackways. Trackways can tell a story. Be a dinosaur detective, follow the clues to solve a trackway mystery.



The mysterious dinosaur trackway (right) shows two sets of prints. One is bird-like, the other is larger and rounded.

One of the most mysterious trackways was found in Texas, USA. There are two very different sets of footprints side by side. What made them and what were they doing?



CLUE 1

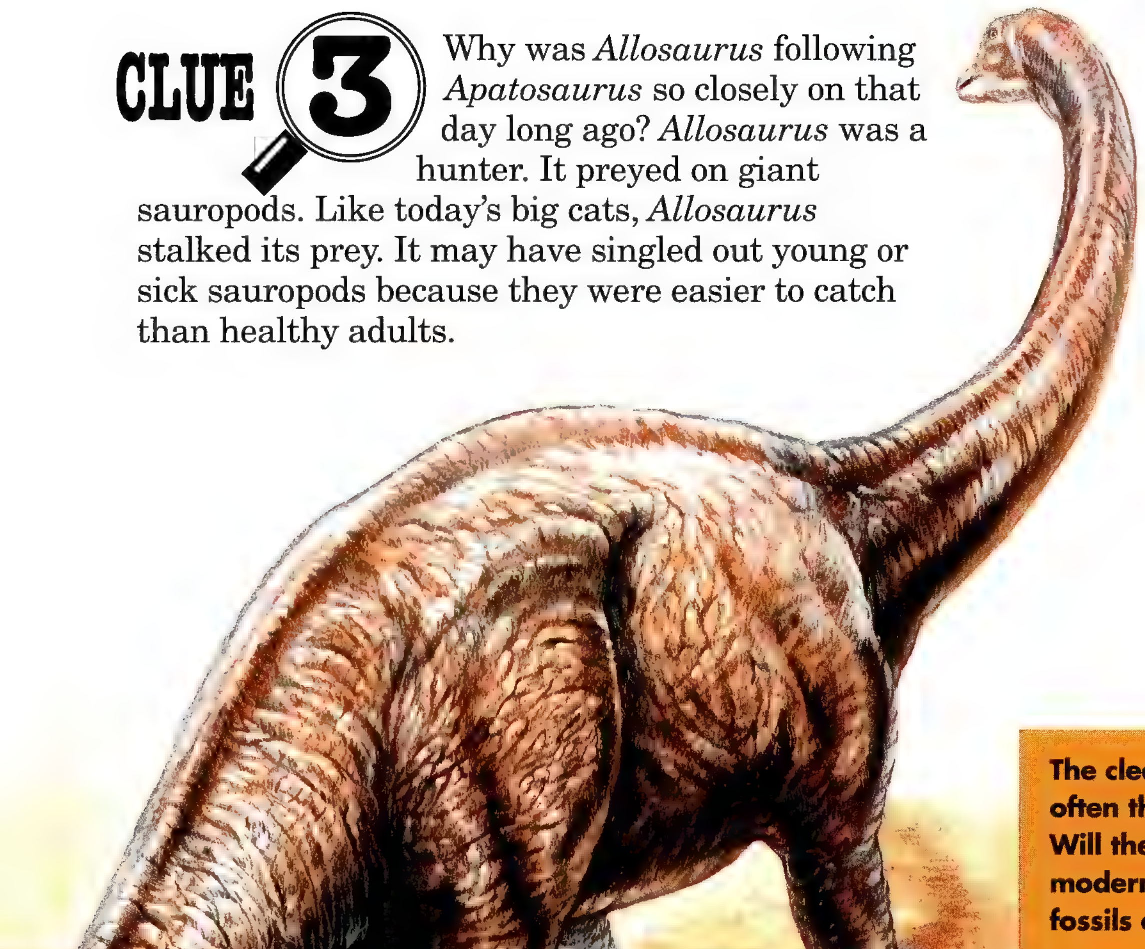
The small, bird-like tracks shown in the picture above belonged to a fierce meat-eating theropod. The footprints are beside and slightly behind the bigger, rounded tracks. Palaeontologists think the bird-like tracks were made by *Allosaurus*, which grew up to 12m long.

CLUE 2

These footprints were made by a plant-eating sauropod as it plodded across a mud-flat about 160 MYA. It was probably *Apatosaurus*. This dinosaur was huge – as long as a tennis court and as heavy as seven elephants. Its footprints were also gigantic, measuring about 1m wide.

CLUE 3

Why was *Allosaurus* following *Apatosaurus* so closely on that day long ago? *Allosaurus* was a hunter. It preyed on giant sauropods. Like today's big cats, *Allosaurus* stalked its prey. It may have singled out young or sick sauropods because they were easier to catch than healthy adults.



On the African plains today, cheetahs stalk a lunch of wildebeest just as some dinosaurs stalked their food millions of years ago.

The clearest fossil footprints are often those first made in sand. Will the sharp tracks left by a modern heron (below) become fossils of the future?

GOT IT!

Was *Allosaurus* stalking *Apatosaurus*? Yes, scientists think that it was. When the tracks were discovered, they were the first clue that some meat-eating dinosaurs hunted their prey, rather than waiting for it to drop dead.

HAPPY ENDING?

Did *Allosaurus* kill *Apatosaurus*? Perhaps the giant was too much for one *Allosaurus* and it may have escaped. The trackway ends suddenly, so we will never know.

IT'S A FACT

LONGEST TRACKWAY

The longest trackway discovered so far is in Colorado, USA. It was made by four *Apatosaurus* walking side by side. The trackway is over 215 metres long.

On the speed track

By studying trackways experts can find out just how speedily some dinosaurs were able to run.

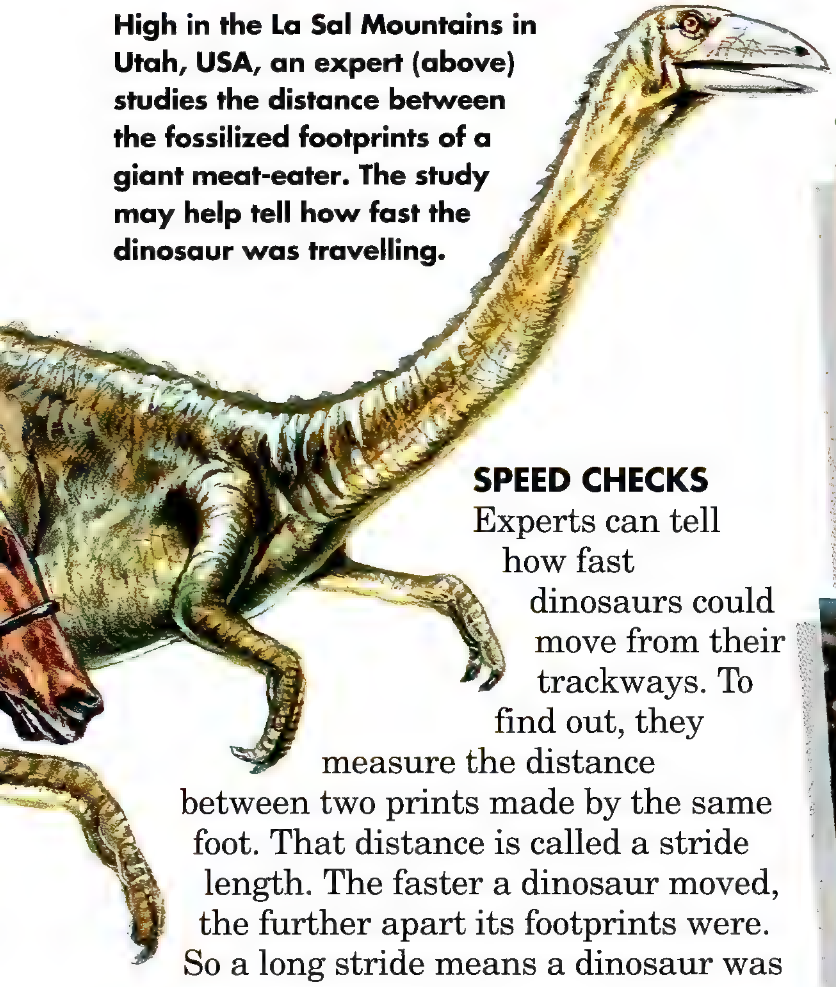
The fastest dinosaurs looked like modern ostriches, and are known as ostrich dinosaurs. They dashed about on their hind legs, using their long toes to grip the ground.

GALLOPING GALLIMIMUS

Gallimimus, which lived at the end of the Age of the Dinosaurs, was an ostrich dinosaur – and one of the speediest. Its long legs were powered by strong muscles and its body was well-balanced by its neck and tail. By studying its footprints carefully, palaeontologists have estimated that *Gallimimus* could probably run flat out at a speed of about 56 km/h.

If you could put *Gallimimus,* a galloping horse and a cyclist in a race against each other, they would probably cross the finishing line in a dead heat. Palaeontologists have carefully measured the distance between *Gallimimus'* fossilized footprints. From these measurements they calculate that this dinosaur could have run at speeds of 56 km/h – which is about as fast as a cyclist or a galloping horse.

High in the La Sal Mountains in Utah, USA, an expert (above) studies the distance between the fossilized footprints of a giant meat-eater. The study may help tell how fast the dinosaur was travelling.



SPEED CHECKS

Experts can tell how fast dinosaurs could move from their trackways. To find out, they measure the distance between two prints made by the same foot. That distance is called a stride length. The faster a dinosaur moved, the further apart its footprints were. So a long stride means a dinosaur was moving fast.

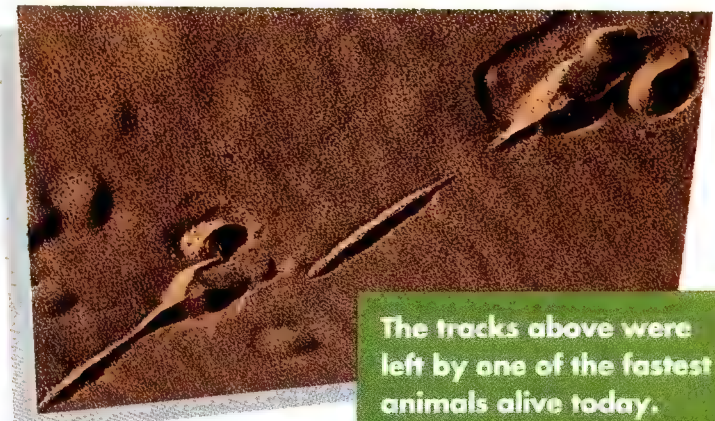
PRINT YOUR SPEED

Next time you are in a place where you can leave footprints, such as on the beach or a muddy path, you can do your own speed check experiment. Try walking first, then go back and run for the same distance. You will see how much further apart your footprints are when you are moving fast.

IT'S A FACT

FASTEST DINOSAUR

The fastest dinosaur was *Dromiceiomimus.* It could run more quickly than an ostrich, which has a top speed of 65 km/h. *Dromiceiomimus* had an extra-long shin bone and that helped it dash along.



The tracks above were left by one of the fastest animals alive today. They were made by an ostrich (below) as it sped across an African desert. The flick marks show that it was running flat out – about 65 km/h.

DINO PARK, USA

IN 1908, EARL DOUGLASS OF THE CARNEGIE MUSEUM, U.S.A, FOUND ENOUGH FOSSILS IN UTAH TO CONVINCE HIM THAT THERE WERE *MANY* MORE TO BE FOUND THERE

WE'RE ON TO SOMETHING **BIG** HERE GEORGE - I KNOW IT!

SO HE RETURNED IN 1909, WORKING AROUND THE GREEN RIVER WHERE IT EMERGES FROM THE UTAH MOUNTAINS. HIS COMPANION AND HELPER WAS WHITE BEARDED GEORGE "DAD" GOODRICH

SURE HOPE YOU'RE RIGHT, EARL!

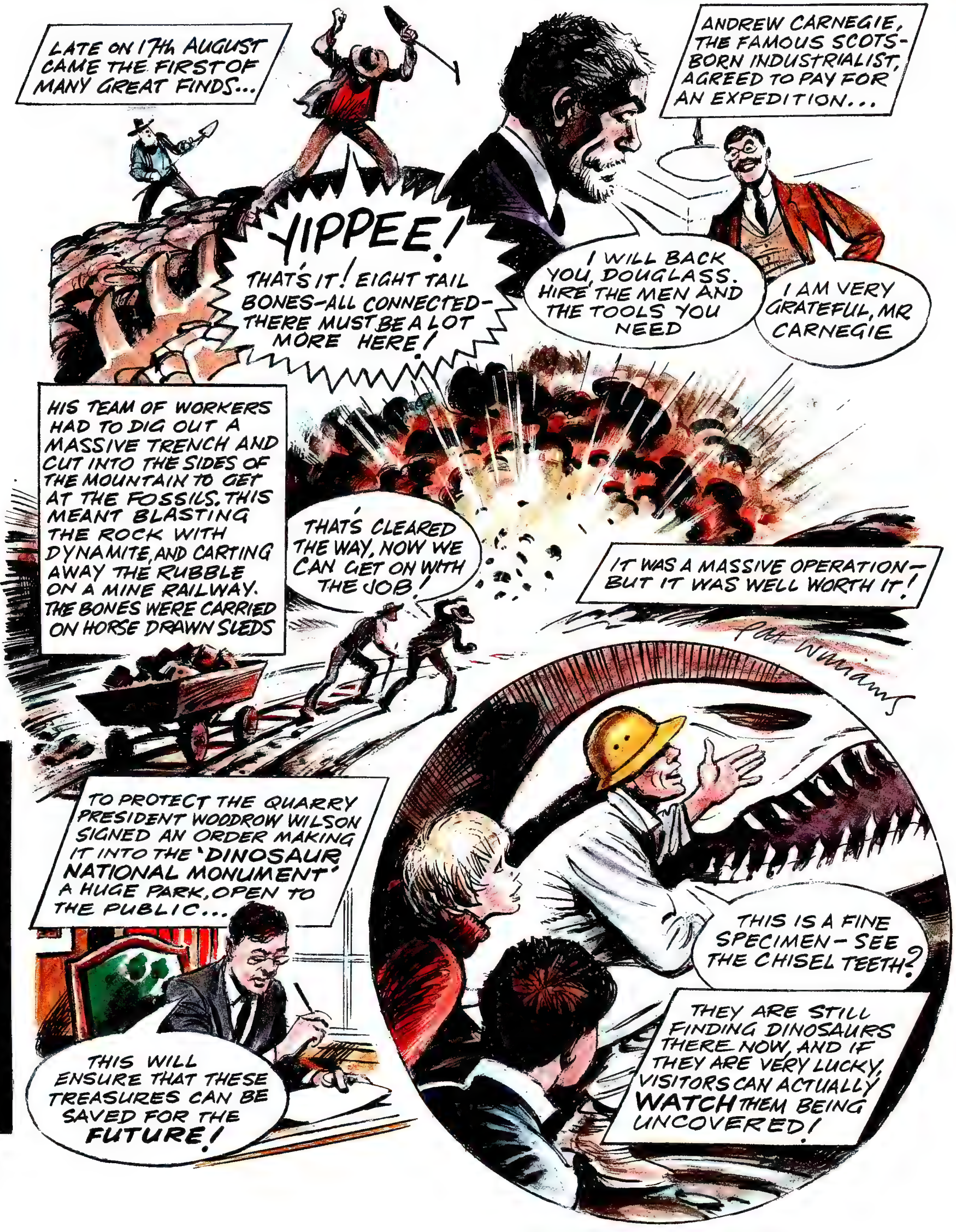
AT FIRST, DOUGLASS AND HIS TEAM LIVED IN TENTS ON THE SITE, WITH A WAGON FOR AN "OFFICE"

HE REFUSED TO STAY IN THE NEAREST TOWN, BUT BUILT A LOG CABIN SO AS TO BE NEAR HIS WORK....

HE LIVED AND WORKED THERE FOR TEN YEARS!

AMONG OTHER SPECIES, THEY FOUND APATOSAURUS (NAMED "LOUISAE" AFTER CARNEGIE'S WIFE) AND DIPLODOCUS

THE GREAT TRENCH WAS 183M LONG, AND 24M DEEP. THE SLOPING WALLS IT EXPOSED HELD A VAST NUMBER OF BONES - 304 TONNES IN ALL!


LATE ON 17th AUGUST CAME THE FIRST OF MANY GREAT FINDS...
YIPPEE! THAT'S IT! EIGHT TAIL BONES—ALL CONNECTED—THERE MUST BE A LOT MORE HERE!
ANDREW CARNEGIE, THE FAMOUS SCOTS-BORN INDUSTRIALIST, AGREED TO PAY FOR AN EXPEDITION...
I WILL BACK YOU, DOUGLASS. HIRE THE MEN AND THE TOOLS YOU NEED
I AM VERY GRATEFUL, MR CARNEGIE
HIS TEAM OF WORKERS HAD TO DIG OUT A MASSIVE TRENCH AND CUT INTO THE SIDES OF THE MOUNTAIN TO GET AT THE FOSSILS. THIS MEANT BLASTING THE ROCK WITH DYNAMITE, AND CARTING AWAY THE RUBBLE ON A MINE RAILWAY. THE BONES WERE CARRIED ON HORSE DRAWN SLEDS
THAT'S CLEARED THE WAY, NOW WE CAN GET ON WITH THE JOB!
IT WAS A MASSIVE OPERATION—BUT IT WAS WELL WORTH IT!
Pat Williams
TO PROTECT THE QUARRY PRESIDENT WOODROW WILSON SIGNED AN ORDER MAKING IT INTO THE 'DINOSAUR NATIONAL MONUMENT' A HUGE PARK, OPEN TO THE PUBLIC...
THIS WILL ENSURE THAT THESE TREASURES CAN BE SAVED FOR THE FUTURE!
THIS IS A FINE SPECIMEN—SEE THE CHISEL TEETH?
THEY ARE STILL FINDING DINOSAURS THERE NOW, AND IF THEY ARE VERY LUCKY, VISITORS CAN ACTUALLY WATCH THEM BEING UNCOVERED!

Improve and test your knowledge with...

DINO Fact File

Triceratops holds all the answers. See how you score in the quiz.

1 Which dinosaur's name means 'King of the Dead'?

a) *Erlikosaurus*
b) *Epanterias*
c) *Eoceratops*

2 What shape were *Polacanthus'* teeth?

a) peg-shaped
b) diamond-shaped
c) leaf-shaped

3 Which was the fastest dinosaur?

a) *Dromiceiomimus*
b) *Deinonychus*
c) *Polacanthus*

4 Which famous sauropod had armour?

a) *Sauropelta*
b) *Saltasaurus*
c) *Seismosaurus*

5 What was *Triadobatrachus*?

a) an early frog
b) a prehistoric crocodile
c) a type of fern

Head hoaxer

The fossilized shells of ammonites were once thought to be the curled-up bodies of snakes that had been turned to stone. Some even had snake-like heads. It was many years before it was realised that someone had stuck the heads on the fossils as a practical joke.

Bundle of nerves

Stegosaurus, like many other large dinosaurs, is thought to have had a large bundle of nerves at the end of its spine which controlled its tail and back legs. This group of nerves was about 20 times bigger than Stegosaurus' brain, but it could only send messages to the animal's back limbs.

Well-set jelly

Jellyfish were among the first animals to be preserved as fossils. Although the first jellyfish fossils are over 640 MYA, most were formed during the Jurassic Period.

6 **_Oviraptor_ was an unusual theropod because:**

- **a) it could fly**
- **b) it did not have a mouthful of teeth**
- **c) it had webbed feet**

7 **How long was _Opisthocoelicaudia_?**

- **a) 12m**
- **b) 22m**
- **c) 5m**

8 **How long is the longest dinosaur trackway?**

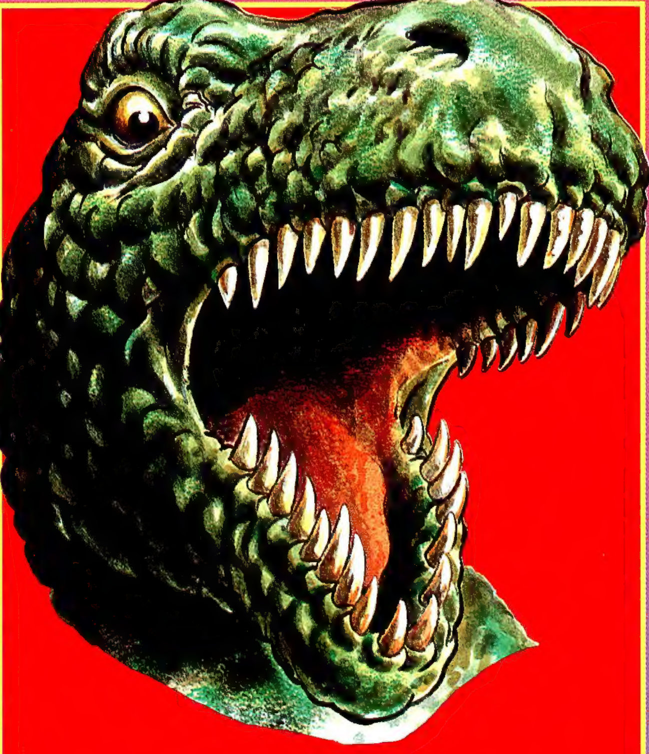
- **a) 215m**
- **b) 2m**
- **c) 15m**

9 **Which dinosaur had bony eyelids?**

- **a) _Anatosaurus_**
- **b) _Euoplocephalus_**
- **c) _Apatosaurus_**

10 **How big was _Oviraptor_?**

- **a) the size of a wolf**
- **b) the size of a chicken**
- **c) the size of a bus**



Here's looking at you

T rex is well known for its large head. Its eye sockets were so big that a human head would have easily fitted inside one!

Living fishing rod

Several unusual reptiles appeared during the Triassic. Tanystopheus, an early step on the road to dinosaurs, had a body over 3m long. Of this, nearly 2m were made up of neck. It used its long, flexible neck to grab fish.

High and dry

The remains of over 20 giant ichthyosaurs (dolphin-like reptiles) were found in the USA on what was once a beach during the Triassic Period. The bodies of the ichthyosaurs were all facing the same way and scientists think they beached themselves, as whales sometimes do today.

Answers to the questions on inside back cover

EPANTERIAS 150 MYA

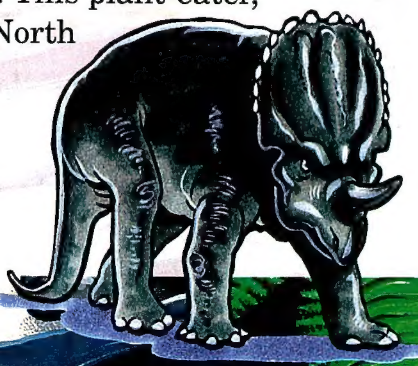
Huge *Epanterias* (ee-pan-terr-i-ass) was longer than a lorry. It lived in the USA in the Late Jurassic Period. *Epanterias* must have been a terrifying sight as it approached its prey. Its immense jaw opened as if on elastic to expose dagger-like fangs. *Epanterias* walked on two legs and clutched its victims with razor-sharp claws. Some scientists think it was actually a large *Allosaurus*.

ERLIKOSAURUS 75 MYA

Erlikosaurus (er-lik-oh-saw-rus) means 'King of the Dead reptile'. This unusual dinosaur walked on two legs and had broad feet with four clawed toes. *Erlikosaurus* was about as long as two small cars. It had a beak and many small, pointed teeth at the back of its narrow jaw. This dinosaur lived in Mongolia during the Cretaceous Period.

(EU)CENTROSAURUS 80 MYA

Eucentrosaurus (you-sen-troh-saw-rus) is another name for *Centrosaurus*. It was as long as an elephant and as tall as an adult human. *Eucentrosaurus'* neck frill had two hook-like horns. This plant-eater, which lived in North America, had a nose horn. Its name means 'well-horned reptile'.



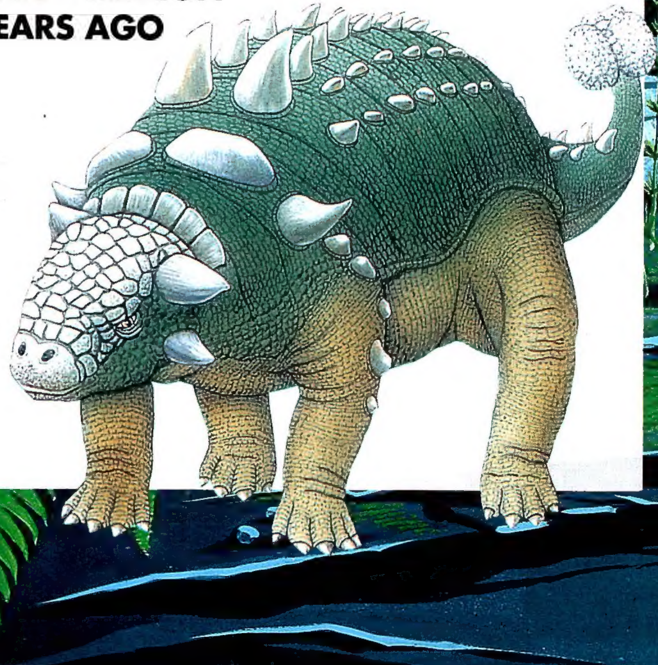
EUHELOPUS 150 MYA

Euhelopus (you-hell-oh-pus) lived in the Late Jurassic Period in eastern China. It weighed as much as four elephants and grew to 15m long. *Euhelopus* walked on four legs and stripped off leaves with its spoon-shaped teeth. It had a very long neck, made up of as many as 19 vertebrae, and a small head. *Euhelopus* means 'good marsh feet'.

EUOPLOCEPHALUS 75 MYA

As long as a crocodile but twice as heavy, *Euoplocephalus* (you-oh-plo-seff-a-lus) was an armoured dinosaur from the Late Cretaceous Period. Its name means 'well-armoured head'. Much of its body was covered with bony studs and sharp spikes that stood out from its back. On each side of its broad head, *Euoplocephalus* had a short horn. When attacked, it lashed out with its clubbed tail, giving predators a hefty clout. It even had bony eyelids that could snap shut to protect its eyes. *Euoplocephalus* lived in Canada and, perhaps, China.

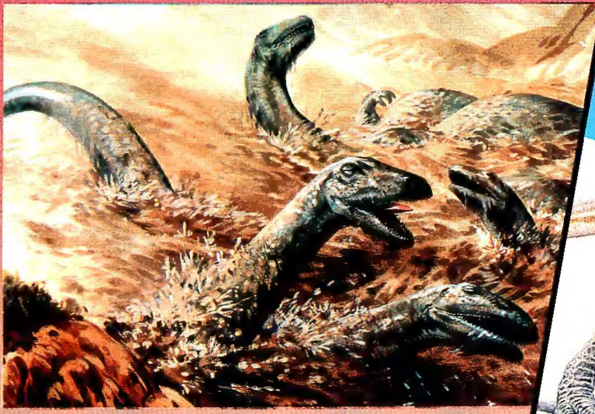
MYA = MILLION YEARS AGO

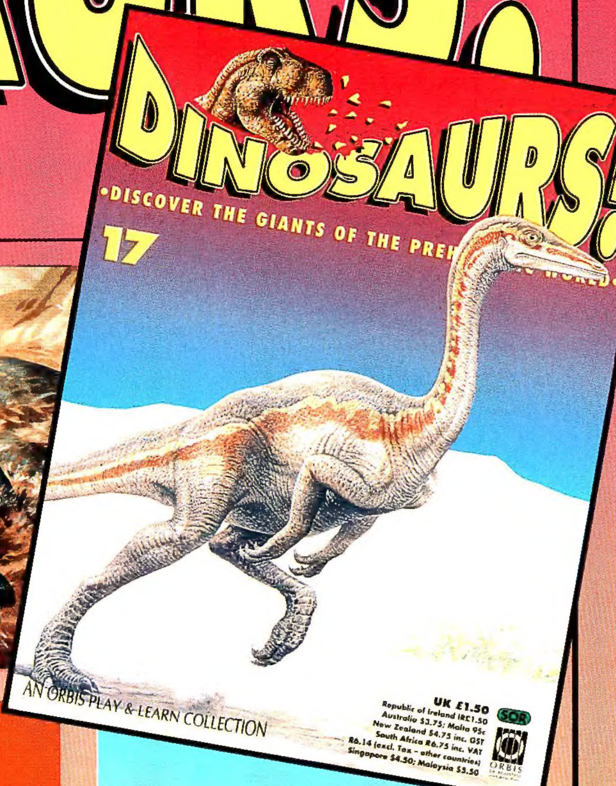


COMING IN PART 17 OF

DINOSAURS!

In IDENTIKIT find out about the ostrich dinosaur *Ornithomimus* and pig-sized, nimble-fingered *Plateosaurus* Plus: DINOSAUR WORLD meets the monsters of the deep.

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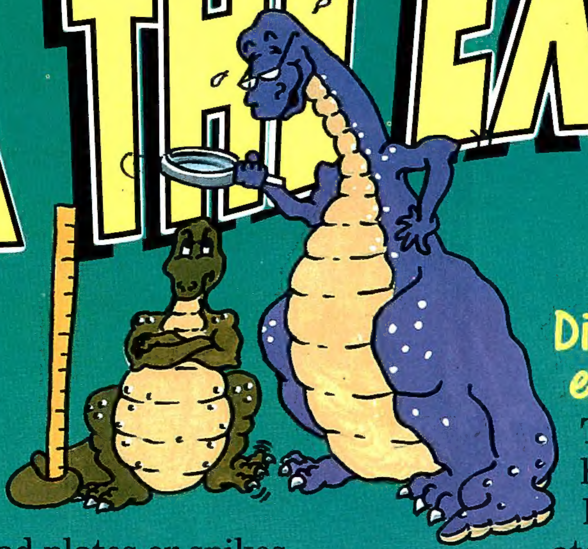
ANSWERS TO DINO FACT FILE QUESTIONS: 1.a 2.c 3.a 4.b 5.a 6.b 7.a 8.a 9.b 10.a

Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

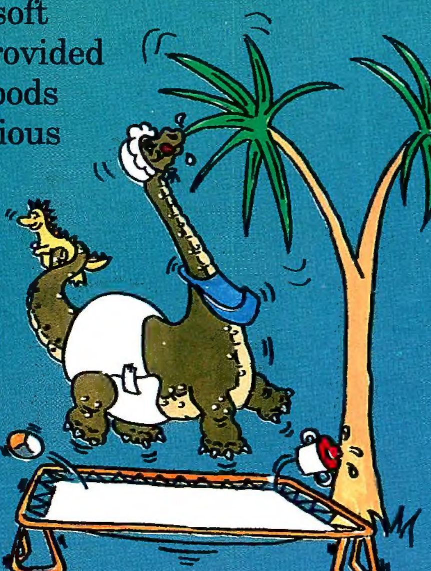


Why did dinosaurs grow so big?

Not all dinosaurs were huge – there were lots of medium-sized and small ones, too. Some had plates or spikes that made their bodies look a lot larger than they actually were. Long-necked dinosaurs needed long tails to balance the weight of their tails. Some dinosaurs did have large bodies, but many were no larger than more recent animals – such as mammoths and rhinos. Dinosaurs often seem larger-than-life, but in reality they came in all different shapes and sizes.

How did baby sauropods feed?

Baby sauropods probably fed on low-growing plants. In areas where these dinosaurs lived, the ground was covered with ferns and young shoots of larger plants. This soft vegetation provided young sauropods with a nutritious diet. Only when they were older and larger would they have graduated to the tougher leaves and twigs of trees.



Did any dinosau eat fish?

This is a difficult question. I have to admit that I do not know whether dinosaurs ate fish. It has been suggested that a new dinosaur from Surrey, England, named *Baryonyx* was a fish-eater. It had smooth, conical teeth in the back part of its jaws – much like those of a fish-eating creature. Fish scales were found near to the animal, which looked as though they might have come from *Baryonyx's* stomach.

Which dinosaur laid the most eggs in one nest?

We do not know for sure, but I think that *Protoceratops* holds the record. Its nests contain about 30 eggs. Whether they were all laid by a single female, at one time, is unclear. Some scientists suspect that several females may have shared a nest. This would certainly explain the large number of eggs.

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